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Woodall

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(54) **NEURAL DIRECTORS**

(75) Inventor: Roger L. Woodall, Jewett City, CT (US)

(73) Assignee: **The United States of America as represented by the Secretary of the Navy, Washington, DC (US)**

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Primary Examiner—John Follansbee
Assistant Examiner—Michael B. Holmes
(74) *Attorney, Agent, or Firm*—James M. Kasischke; Michael F. Oglo; Jean-Paul A. Nasser

(57) **ABSTRACT**

A neural director is provided which is a neural network constructed with weights that are determined a priori. The neural director receives an input vector X comprising "I" input components "X_i" and generates in response an output vector Y comprising "J" output components. The neural director has an input processing node layer which receives the input vector X and an output processing node layer which generates the output vector Y. The connections between the input and output processing node layers are a unique weighting set w(i,j) that contains an internal representation of a uniform spatial distribution of "J" unit vectors throughout a unit sphere of "I" dimensions. Thus the cosine value between any two adjacent unit vectors is a constant everywhere in the unit sphere.

17 Claims, 3 Drawing Sheets